Chronic Disease

Health objective for the year 2010: Improve the quality of life by reducing premature death, disability, and the economic costs associated with chronic diseases, especially cardiovascular diseases, cancer, and diabetes.

Health Implications

The term "chronic," as defined by *Taber's Cyclopedic Medical Dictionary*, means "long, drawn out; of long duration; designating a disease showing little change or of slow progression and long continuance." This is an apt description of the three chronic diseases discussed in this chapter: cardiovascular disease, cancer, and diabetes mellitus. With cardiovascular disease being the leading cause of death in the United States, cancer the second, and diabetes the seventh, it is estimated that the morbidity and mortality costs of these three chronic conditions is more than $334 billion annually. This number does not include reduced or lost productivity costs for the working-age population. It also cannot begin to reflect the immense emotional cost in human suffering incurred as a result of these diseases. Research suggests that at least half (and probably many more) of these chronic-condition cases could be avoided through the practice of lifelong healthy behaviors, especially those related to tobacco use, diet, and physical inactivity. The importance of making healthy behaviors the norm throughout life and for all populations cannot be underestimated.

Cardiovascular Disease

Cardiovascular diseases account for more than 40% of all mortality in the United States. About one in four Americans (nearly 59 million), have one or more forms of cardiovascular disease (CVD), including high blood pressure, coronary heart disease, and cerebrovascular disease. One in six men and one in eight women aged 45 and older have already had a heart attack or stroke. Major modifiable risk factors for CVD include high blood pressure, high blood cholesterol, and tobacco use. Other important risk factors are obesity, physical inactivity, and diabetes. An individual's risk of developing CVD is strongly correlated with the number of risk factors that the person has. High blood pressure increases the risk of developing coronary heart disease by two to four times and of having a stroke by four to six times; high blood cholesterol levels (greater than 240 mg/dL) double the risk of developing coronary heart disease. In 1994, 84% of adult

Table 1. Chronic Disease Indicators

	Lancaster Recent	Lancaster Objective 2010	Nebraska Recent	Nebraska Objective 2010	National Recent	National Objective 2010[1]
Age adjusted deaths per 100,000 population						
Cardiovascular disease[2]	170.0[3]	195.0	--[4]	--	--	--
Coronary heart disease[5]	100.3[3]	51.0	--[4]	--	108.0[6]	51.0
Stroke[7]	34.0[3]	16.0	40.1[8]	--	25.0[9]	16.0
Cancer (all forms)[10]	150.1[3]	103.0	150.7[8]	--	122.9[9]	103.0
Lung cancer[11]	39.5[3]	33.0	42.2[12]	--	36.9[9]	33.0
Breast cancer among women[13]	32.6[3]	26.0	22.2[8]	--	21.0[6]	16.6
Colorectal cancer[14]	13.6[3]	8.8	16.7[12]	--	11.8[9]	8.8
Prostate cancer among men[15]	14.1[3]	12.0	19.9[8]	--	--	17.1
Diabetes[16]	14.0[3]	12.0	14.1[8]	--	13.6[9]	12.0
Risk factors						
Percent of adults with high blood pressure[17]	23.6[18]	16.0	23.0[19]	--	20.0[20]	16.0
Percent of adults who have had their blood cholesterol checked within the preceding five years	65.7[18]	75.0	60.0[19]	--	69.1[20]	75.0
Percent of adult females who have received a Pap test within the preceding three years[21]	88.1[18]	85.0	83.0[19]	--	84.9[22]	85.0
Percent of women aged 50 and older who have had a mammogram within the preceding two years	77.6[18]	85.0	69.7[22]	--	75.2[22]	--
Percent of males aged 50 years and older who have had a prostate exam within the preceding two years	--[23]	50.0	--	--	--	--
Percent of adults aged 50 and older who have had a digital rectal exam within the past two years for colorectal cancer	29.7[24]	75.0	--	--	30.0[25]	75.0
Percent of adults with diabetes[26]	5.1[18]	4.5	5.2[19]	--	5.4[22]	--

Nebraskans reported having one or more risk factors for CVD.

Modifying risk factors, such as stopping tobacco use, lowering high blood pressure, lowering high blood cholesterol, reducing overweight and obesity, increasing physical activity, and controlling diabetes reduces the risk of heart disease. Small changes can make a big difference. Decreasing body weight by only ten pounds can lower blood pressure, and a 1% reduction in a person's total blood cholesterol level can result in at least a 2% decrease in the risk of developing heart disease.

Cancer

According to American Cancer Society (ACS) estimates, 1,221,800 new cancer cases would have been diagnosed in 1999, and approximately 564,800 people would have died of cancer during the year. Cancers of the lung, prostate, breast, and colon/rectum are the four leading cancer sites for all racial and ethnic populations in the United States and together account for more than 50% of all newly diagnosed cancers.

The prospect of preventing and surviving cancer continues to improve. Perhaps 50% or more of cancer incidence can be prevented through smoking cessation and changed dietary habits. The scientific evidence identifying smoking as a cause of cancer has been recognized for more than 30 years. Evidence of a potential link between diet and cancer has emerged over the past decade and has progressed to the extent that recommendations for prudent dietary changes can now be made. Among the dietary recommendations are adequate dietary fiber, fat in moderation, and an emphasis on the intake of fruits, vegetables, whole grains, and low-fat dairy products.

Diabetes

Diabetes, especially Type 2 diabetes (previously called adult-onset diabetes), and the complications associated with diabetes, are substantially increasing both in the United States and throughout the world. An estimated 15.7 million people (8% of the U.S. population) have diabetes. This increase in the disease has been especially prevalent in the minority communities. In addition, the age of onset for Type 2 diabetes has been steadily decreasing and is now being found in teenagers and preteens. Diagnosis of Type 2 diabetes in teens has been especially common among the American Indian population but is increasing among teens of all populations. The commonalities among these teens – obesity and physical inactivity – add to the ever-mounting evidence that appropriate diet and adequate exercise are paramount to good health and can protect from chronic disease. It is estimated that fully 45% of all diabetes mellitus cases could be prevented through control of obesity.

Diabetes is the leading cause of nontraumatic amputations, blindness, and end-stage renal disease. Cardiovascular disease is the leading cause of death among people with diabetes, accounting for over half of all deaths in this group nationally. Persons with diabetes were six to ten times more likely to be hospitalized for heart disease or stroke than the nondiabetic population. Early diagnosis, aggressive management, and treatment are critical to maintenance of good health for those with diabetes. Frighteningly, an estimated one-third to one-half of people with diabetes do not know they have the disease. The need for ongoing public education about signs and symptoms of diabetes and screening for the condition is an obvious public health necessity.

Current Status and Trends

Cardiovascular Disease

Over the past 20 years, the death rate for cardiovascular disease has declined by 46% in the United States. Dramatic decreases in mortality due to coronary heart disease and stroke were primarily responsible for this overall reduction. Changes in technological and medical advances along with lifestyle and risk-factor reduction contributed to the decline. However, CVD is still the leading cause of death, killing nearly as many Americans as all other diseases combined. Because approximately two-thirds of heart attack patients do not make a complete recovery and the majority of stroke survivors are left with some degree of impairment, CVD is also the leading cause of limitation in physical activity, of hospital bed use, and of Social Security Disability claims.

The mortality rate in the general population has declined significantly over the past 35 years, with absolute declines being greater in males than in females. Contrary to the belief of many women, cardiovascular disease, not breast cancer, is the leading cause of death among women.

Although stroke death rates have been decreasing, the decline among African Americans has not been as substantial as the decline in total population, even with improvements in the detection and treatment of high blood pressure. The National Center for Health Statistics estimates that the average American can expect to live 5.5 years longer today than was the case even 30 years ago, and nearly 4 years of that gain in life expectancy can be attributed to our progress against CVD, including coronary heart disease and stroke.

In Nebraska 3,269 deaths resulted from coronary heart disease in 1993. The mortality rate for that year (85.6 per 100,000 population) was down from the 1987 baseline of 114 per 100,000 population. Age-adjusted mortality data for heart disease show substantial differences between racial and ethnic groups across the state. Mortality rates were much higher for Native Americans and African Americans than for Whites in Nebraska. Rates for Asian Americans and Hispanics were much lower.

The improvements made in diagnosis and treatment of CVD are remarkable, however; positive lifestyle behaviors remain critical to cardiovascular health and the prevention of heart disease. Obesity and sedentary lifestyles are becoming more common among all sectors of the American population, including school-age children, for whom heart disease prevention efforts may be most effective.

In addition, personal responsibility for knowing blood pressure and cholesterol levels cannot be overemphasized. In Nebraska, the majority of respondents in the Behavioral Risk Factor Surveillance System Report (BRFSS), 92%, stated they had their blood pressure checked within the past two years. The proportion of adult Nebraskans who have ever been told they have high blood pressure has remained fairly stable, ranging from 20% to 22% between 1987 and 1995. In Lancaster County, an impressive 70% of the population reported having had a blood pressure check within the past six months. The 1995 Nebraska BRFSS also reports that 67% of respondents indicated having their blood cholesterol checked, with another 31% saying they have never had it checked. In Lancaster County, 67% of the population reported

having a blood cholesterol checked in the past five years. However, among the minority population, only 50% reported following this screening recommendation.

Cancer

Of the 250 million Americans now living, about 75 million will develop cancer at some time in their lives. Cancer may strike at any age but is more common in older persons. Overall, 70% of cancer deaths occur in the age group 65 years and older. Research has shown that many cancers can be prevented or cured if they are detected and treated in the early stages of the disease. Average survival time for people with cancer is also increasing, although survival rates vary among population subgroups by type of cancer and by stage of the disease at the time of diagnosis.

The potential for reducing cancer incidence and mortality through prevention and early detection strategies appears to be great. Diet is believed to be responsible for approximately 30–40% of all cancer deaths, smoking at least 30%. Even though progress has been made in reducing the percentage of adult smokers since the 1964 Surgeon General's Report on Smoking and Health, 23% of the adult population still smokes, and the greatest percentage of decline has been in men. More women will be battling lung cancer than men at the start of the twenty-first century unless a sharper decline in the number of women who smoke occurs. Lung cancer mortality rates continue to exceed the mortality rates for breast cancer in women. In contrast, white males, who have reduced or stopped smoking, have begun to experience a decline in lung cancer incidence.

In Nebraska and Lancaster County, approximately 21% of the adult population uses tobacco. While the percentage of adult tobacco users has remained relatively constant for the past few years, the incidence of youth tobacco use has continued to increase. The 1997 Nebraska Youth Risk Behavior Survey (YRBS) reports that 39% of 9th–12th grade youth used tobacco in the past 30 days prior to the survey. The Lancaster County YRBS reports 38% of youth, more girls than boys, using tobacco in the past 30 days prior to the survey. Roughly one-third of the youth that continue to use tobacco will die of a tobacco-related illness.

In Lancaster County, nearly 57% of new cases of cancer are found in the prostate, breast, lung, and colon or rectum. Lancaster County men are more likely to develop cancer and more likely to die from the disease than are women. This is consistent with national trends. In the United States, men have a one in two lifetime risk of developing cancer; for women the risk is one in three. For Lancaster county men, the prostate is the leading site for new cancer cases, but lung cancer is the leading cause of cancer deaths. In women, the breast is the leading site of new cancer cases and breast cancer is also the leading cause of cancer mortality, followed closely by lung cancer. This differs from national trends in which more women die from lung cancer than breast cancer. In an average year, 94 Lancaster County residents die of lung cancer, 42 die of colorectal cancer, 38 women die of breast cancer, and 22 Lancaster County men die of prostate cancer.

Diabetes

There are approximately 80,000 new cases of diabetes diagnosed each year in the United States. According to the Nebraska Behavioral Risk Factor Surveillance System (1995–96), approximately 135,000 Nebraskans currently have diabetes, although only about one-half of them have been diagnosed. The Centers for Disease Control estimate that, each year in Nebraska, diabetes contributes to an average of 345 amputations, 83 cases of kidney failure, and

241 cases of blindness. It causes long-term reduction in activity for 21,178 residents. The rate of diabetes-related mortality for minority populations is substantially higher than the rate for the white population in Nebraska and the United States. In Nebraska, diabetes-related mortality rates per 100,000 population from 1989 through 1993 for Hispanics (50.5), African Americans (70.1), and Native Americans (138.1) far exceeded the rate for Whites (32.3).

The statistics on the two major controllable factors in the prevention or management of diabetes, obesity, and physical activity are dismal. The prevalence of overweight in children and adults in the state and country has been rising over the last decade. More than one-third of adult Americans are currently overweight. Among minorities, this figure reaches nearly 50%. The incidence of overweight in children has become epidemic, with one in five children currently overweight or obese. The Nebraska BRFS reports that about 28% of adults were overweight in 1994. Since 90% of diabetes cases are Type 2, it is estimated that about 45% of all diabetes mellitus cases could be prevented through control of obesity.

Moderately vigorous physical activity accumulated over the course of the day can also lower the risk for Type 2 diabetes. Nationally, 23% of persons with diabetes reported having no leisure-time physical activity (as defined as physical activity lasting thirty minutes or more per session five or more times per week). The Nebraska rate was also 23%, and Lancaster County had a rate of 19% of people with diabetes who did not participate in leisure-time physical activity. However, the percent of persons with diabetes that reported participation in weekly physical activity was 23% nationally, 21% for Nebraska, and 32.5% for Lancaster County.

Health Disparities

Major disparities exist for minority and low-income population groups, with a disproportionate burden of death and disability from the three major chronic diseases addressed in this chapter weighing on them. The difference between the races represents a monumental challenge in understanding the reasons for these differences. Additionally, it affords a unique opportunity to lower morbidity and mortality rates while increasing survival rates in these population subgroups.

Significant factors that must be addressed when discussing health disparities involve access issues. These include access to early disease detection through health screening exams, access to health care, and access to appropriate follow-up treatment resources. This holds true for cardiovascular disease, cancer, and diabetes. In addition, barriers related to language and culture impact, often negatively, the health status of the individual.

Cardiovascular Disease

An interesting picture emerges when viewing national heart disease data. The mortality rate from CVD (1995) shows that African Americans have a 40% higher CVD mortality rate than the White population, whose disease mortality rate is 40% higher than the Asian population. Disparities extend to risk factors of CVD including hypertension and high cholesterol levels. Women who have had a heart attack have poorer health outcomes in general than males. CVD management barriers include delayed diagnosis and treatment implementation for heart disease.

Stroke mortality is another facet of CVD. The African American population is

affected more by stroke than any other population subgroup in the United States. Age-adjusted stroke mortality is almost 80% higher in African Americans than in Whites and about 17% higher in males than in females. Moreover, age-specific stroke mortality is higher in African Americans than in whites in all age groups up to age 84 and higher in males than females throughout all adult age groups.

Cancer

Disparities exist in both mortality and incidence rates for cancer. Statistics show that African-American men and women have higher age-adjusted incidence and mortality rates for many cancers and lower survival rates than do Whites for all but six of 25 primary cancer sites. For men and women combined, African Americans have about a 35% higher cancer death rate than Whites. In Nebraska, this trend in cancer mortality among African Americans continues to be higher than the rates for people of all other races or ethnic origins for the 1988–92 time period. The incidence of cervical cancer is higher in both Hispanic and Vietnamese populations than in the white population nationally.

Prevention and early detection can drastically reduce the risk of death from cancer. The complete lack of any screening exams, not being screened regularly, and limited access to follow-up treatment are reasons for the higher mortality rate from breast cancer in the African-American community than among White women. Hispanic, American Indian and Alaska Native, and Asian and Pacific Islander women have low rates of screening and treatment, limited access to health facilities and physicians, and barriers related to language, culture, and negative provider attitudes. Eliminating these differences is vital and will be the focus of attention on the national as well as the local level.

Diabetes

The prevalence of diabetes is greater in ethnic minority populations including African American, Hispanic, Native American, and Asian groups. Furthermore, these populations are also at greater risk of associated complications of the disease. Factors such as poor nutrition and poor or nonexistent participation in an exercise regimen influence the onset of diabetes. Another major contributor to this disparity involves the lack of access to educational, preventive, and control programs for diabetes. This, in turn, affects diagnosis identification, thus escalating the incidence of disease severity. Each of these factors impacts the other, creating a vicious cycle. By identifying and tracking reasons for disparity in diabetes health outcomes, specific areas of program deficiencies can be targeted.

Public Health Infrastructure

The ability to reduce morbidity and mortality from chronic disease depends in part on the existence and application of many types of resources. First, the means to provide information to the public and to health care professionals on prevention, early detection, and treatment is essential. For example, although prostate is the leading site of new cancer cases in Lancaster County and the rate of prostate cancer among African American men is double that of the general population, few resources are dedicated to public awareness and screening for this cancer.

Second, there must be systems for providing patients with access to appropriate and effective treatment. Third, the mechanism for maintaining continued research progress and for

fostering new research is crucial. These needs can only partially be met with the network of chronic disease control resources currently in place. Gaps in the network exist, and it is imperative that these gaps in the transfer of information, optimal practice patterns, research capability, and other areas be recognized and filled to meet chronic disease prevention and control needs.

With research suggesting screening as a significant preventive measure for most types of chronic disease, the screening guidelines must be considered an essential component to health care. Primary care providers along with public and private agencies must work together to develop and implement screening protocol for identification of risk indicators, risk reduction management, and closer collaboration with patients. In addition, the health department and community will need to identify resources that will allow high-risk population groups access to these essential screenings and treatment services if we are to have an impact on eliminating health disparities.

Recommendations

Aggressive educational efforts, directed to both the public and health professionals, about the necessity of practicing lifestyle behaviors that prevent chronic diseases must be amplified and maintained.

- Public educational efforts should be intensified regarding the effectiveness of screening using consistent guidelines.
- Health screenings for high blood pressure, high blood cholesterol, diabetes, colo/rectal cancer, prostate cancer, and breast and cervical cancer (mammography and pap tests) must be made routinely available to the community and especially to those populations at greatest risk.
- A community-wide and comprehensive approach to reducing the rate at which children start to use tobacco, to expanding and enhancing cessation efforts, and to protecting the public from exposure to secondhand smoke must be adopted and implemented.
- Physicians and other health care providers must routinely counsel their patients on the importance of smoking cessation, healthful diet, and physical activity.
- A comprehensive campaign to promote a healthful diet including at least five fruits and vegetables a day, high fiber, whole grains, and low-fat dairy should be instituted through a partnership of agencies and associations.
- An aggressive promotion of physical activity through existing programs and through further development of partnerships and programs would help make physical activity a part of the community culture.
- Promote consistent and age-appropriate and educational-level-appropriate chronic disease prevention education and interventions at schools, churches, and worksites.
- Ensure access for all to health care through identification of gaps in service, collaboration among agencies to fill the gaps and remove barriers, and utilization of the Mobile Health Clinic where appropriate.
- Promote and implement educational campaigns in a manner that is culturally sensitive and language appropriate.
- All persons with diabetes should receive an annual dilated eye examination, semiannual foot examination, and annual glycosylated hemoglobin (GHb) assessment.

Notes

Related discussion or indicators are located in the chapters on *Older Adults*, *Tobacco Use*, and *Nutrition and Physical Activity*.

Table 1

-- Currently no data source.

1. U. S. Department of Health and Human Services, Office of Public Health and Science, *Healthy People 2010 Objectives: Draft for Public Comment*, September 1998.
2. Cardiovascular disease defined as ICD codes 401-405 (hypertension), 410-414 (ischemic heart disease), 420-429 (other heart disease), and 430-438 (cerebrovascular disease).
3. Lincoln–Lancaster County Health Department, Vital Statistics, 1998.
4. Currently no data source. Could be obtained from the Vital Statistics data at the Nebraska Health & Human Services System.
5. Coronary heart disease defined as ICD codes 402, 410-414, and 429.2.
6. U. S. Department of Health and Human Services, Office of Public Health and Science, *Healthy People 2010 Objectives: Draft for Public Comment*, September 1998. 1995 data from the National Vital Statistics System.
7. Stroke defined as ICD codes 430-438.
8. Nebraska Health and Human Services System, *Vital Statistics Report*, 1998.
9. Centers for Disease Control and Prevention, National Center for Health Statistics, "Births and deaths: Preliminary Data for 1998," *National Vital Statistics Reports*, vol. 47, no. 25, October 1999.
10. Cancer defined as ICD codes 140-208.
11. Lung cancer defined as ICD codes 162.2-162.9.
12. Nebraska Health & Human Services System, Nebraska Cancer Registry, 1997.
13. Breast cancer defined as ICD code 174.
14. Colorectal cancer defined as ICD codes 153.0-154.3, 154.8, 159.0
15. Prostate cancer defined as ICD code 185.
16. Diabetes defined as ICD code 250.
17. Percent of adults who have been told by a health professional that they have high blood pressure.
18. Lincoln–Lancaster County Health Department, Behavioral Risk Factor Survey, 1999.
19. Nebraska Health and Human Services System, Dept. of Regulation and Licensure, *Behavioral Risk Factor Surveillance System Report,* 1995–1996.
20. Division of Adult and Community Health, Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, *1997 BRFSS Summary Prevalence Report*.
21. Percent of women who have not had a hysterectomy who have had a Pap test within the preceding three years.
22. Division of Adult and Community Health, Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, *1998 BRFSS Summary Prevalence Report*.
23. It is unfortunate that prostate exam screening data is not available from the standard national behavior health surveys. This data could be collected locally through a community health survey.
24. Lincoln–Lancaster County Health Department, Behavioral Risk Factor Survey, 1989.
25. U.S. Dept. of Health and Human Services, Office of Public Health and Science, *Healthy People 2010 Objectives: Draft for Public Comment*, September 1998. 1993 from the National Health Interview Survey.
26. Percent of adults who have been told by a doctor that they have diabetes.